CALIFORNIA CHAPARRAL INSTITUTE

...the voice of the chaparral

Stanislaus National Forest
Attn: Rim Recovery
19777 Greenley Road
Sonora, CA 95370

January 1, 2014

Dear Rim Fire Recovery Project Review Team,

We recognize that the US Forest Service (USFS) is endeavoring to deal with a multitude of challenges in certain Sierra Nevada forests, from the removal of large overstory trees by excessive logging and the negative impact of past management actions, to changing fire and ecosystem dynamics due to climate change and an increasing population. The new USFS Ecological Restoration Implementation Plan for Region 5 represents an important step in dealing with these challenges by using the best available science to protect California's natural resources.

However, the Rim Fire Recovery Project represents a step backward by attempting to justify management actions (salvage logging) to support industrial tree farming and timber production as ecological restoration. The Project is also repeating mistakes made after the 1987 Stanislaus Complex Fire. These mistakes include:

- Confusing techniques to increase timber harvests with what is needed to protect the natural environment.
- Degradation of biodiversity and watershed function by post fire logging.
- Causing significant soil disturbance by salvage logging activities.
- Engaging in activities that encourage the spread of invasive weeds.
- Exaggerating the impacts of fire exclusion and fire severity.

Although we understand the desire to "capture the economic value" of dead trees, the environmental cost will be in excess of whatever profit is gained. The suggestion that the profits from such action will be used to fund "other future restoration efforts" is troubling considering the practices used in such efforts after the 1987 fire:

- Wide spread use of chemical agents to eliminate native species perceived as competitors to timber production.
- Extensive soil disturbance of burned ground by tilling.
- Planting high density conifer tree farms that increased fire risk and may have been responsible for increased fire severity during the Rim Fire in some areas.

Sadly, much of what the USFS will hear in comments critical of this project will be very similar to those heard after the 1987 fire. And based on the assumptions the USFS is using to justify the current project, we believe a silvicultural bias continues to dominate the agency over the long term vision as described in the Ecological Restoration Implementation Plan.

For example, in discussing the 1987 post-fire "restoration" effort, the Los Angeles Times quoted Stanislaus National Forest silviculturalist Mike Brown as saying, "If we defer to nature and nature's rate of getting this done, what we end up with is a monoculture of brush that is an extreme fire hazard" (Paddock 1993).

After the Rim Fire, USFS botanist Jennie Haas was quoted as saying, "If we don't intervene, it will convert to brush." And retired Stanislaus National Forest fire manager Allen Johnson said while looking at a burned area that had been salvaged logged and replanted after the 1974 Granite Fire, "You look right here and it killed everything" (Boxall 2013).

In the preparation of the Environmental Impact Statement (EIS) for this project, we urge the USFS to recognize that:

1. Wildfires, severe or not, do not "destroy" or "kill everything." Post fire environments represent one of the richest habitats on earth.
2. The frequently demonized "brush," large stands of dead trees, and vast fields of post fire wildflowers all provide habitat for a multitude of animals and are a *natural* part of the post fire ecosystem.
3. Post fire succession is a slow process.

In light of a rapidly changing climate and environment, the USFS should re-examine its assumptions about wildfire and its approaches to forest management, to learn from mistakes made after the 1987 Stanislaus Complex Fire, and most importantly, to be patient. And please stop devaluing shrubland habitats. There is more to a healthy, biodiverse forest ecosystem than conifers.

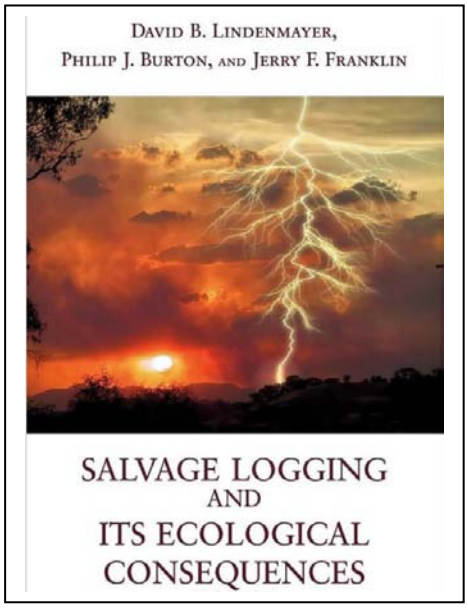
The kind of disturbance the USFS will be causing by its proposed salvage logging operation is unnecessarily damaging to the natural environment. Therefore, we object to the US Forest Service's Rim Fire "Recovery" Project as outlined below.

1. Post-fire Logging is Not Supported by the Science

The science is so clear and extensive regarding the negative impacts of salvage logging that we are surprised the USFS has ignored it.

The claim in the Project's Scooping Package that, "Salvage logging is the first step in the process of long-term forest recovery," contradicts what we know about forest ecology. In a recent book that presents a comprehensive examination of salvage logging, Lindenmayer and Franklin (2008) concluded that,

The notion that salvage logging assists the ecological recovery of naturally disturbed forests is fundamentally incorrect. Hence justifications for salvage logging based on contributions to ecological recovery have little merit. ***We know of few circumstances where salvage logging has been demonstrated to directly contribute to recovery of ecological processes or biodiversity.***



Donato et al. (2006, 2006b) came to a similar conclusion when they wrote,

> Our data show that postfire logging, by removing naturally seeded conifers and increasing surface fuel loads, can be counterproductive to goals of forest regeneration and fuel reduction. In addition, forest regeneration is not necessarily in crisis across all burned forest landscapes.

Salvage Logging Reduces Biodiversity. From the broadest perspective (maintaining all biodiversity or biotic integrity), the impacts of post-fire logging can be readily predicted from basic ecological principles.

Post fire logging compounds a fire disturbance with another disturbance that can be far more severe when measuring disturbance magnitude by biomass removed, which is typically greater with logging than with a forest fire. The conditions left after the combination of fire and post fire logging greatly shrink the resource gradients along which species may partition themselves (i.e. there are not many niches) and create stress.

This means that fewer species, mostly stress tolerators such as cheatgrass, can thrive (along with the artificially selected crop trees that are planted). Biodiversity (and naturally selected genetic diversity) is therefore predicted by basic ecological principles to be significantly reduced.

Adding another stressor (salvage logging) to the post fire environment degrades both terrestrial and aquatic ecosystems (Karr et al. 2004).

By conducting salvage logging in a post fire environment, as the USFS is proposing in the Project, an alternative and artificial vegetation state is created (Paine et al. 1998 and Odion and Sarr 2007). This approach does not align with the USFS Ecological Restoration Implementation Plan which states (emphasis ours),

> From this point forward, Ecological Restoration will be the central driver of wildland and forest stewardship in the Pacific Southwest Region, across all program areas and activities. **Future Land and Resource Management Plans, other strategic plans and project plans will identify Ecological Restoration as a core objective.**

Salvage Logging Spreads Invasive Species. Post-fire logging in the Sierra Nevada has been found to cause cheatgrass invasion and increase the risk of repeat burning leading to type conversion (McGinnis et al. 2010).

In the photos on the following page (Photos 1 and 2), logged and unlogged areas are shown about seven years after the 2004 Fred's Fire in the American River Drainage. Photo 1 shows the logged area, which has become a field of dead *Ceanothus velutinus* (killed by herbicides) and weeds. Photo 2 shows an unlogged adjacent area that was mapped at high-severity (and hence was a candidate for logging). It clearly shows an environment with richer ecological integrity and biodiversity. It is hardly the "destroyed" ecosystem as claimed in the Scoping Package.

Photo 1 (above). Seven years after the Fred's Fire. Logged and treated with herbicides.
Photo 2 (below). Unlogged and allowed to recover naturally. Photos by Dennis Odion.

2. Impacts of Fire Exclusion Overstated

The USFS claims in its Rim Fire Recovery Scoping Package that failure to "treat" the Rim Fire area through salvage logging would be "setting up another severe fire scenario" and could result in "severe soil damage (hydrophobic soils)… far more damaging than the Rim Fire."

Due to the lack of research on the subject (McIver and Starr 2000, Lindermayer and Noss 2006), these are speculations bordering on hyperbole.

> Until we know more about the mechanisms of fire-induced tree mortality, and incorporate this knowledge into fire-effects models, we will remain uncertain on the extent to which postfire logging reduces re-burn severity (McIver and Ottmar 2007).

The speculations appear to be based on questionable assumptions made in the Scoping Package that, 1) "Most of the stands that burned were over stocked *due to decades of fire exclusion* and now have far more dead trees within them than would have occurred naturally," and that 2) "If dead material were left and burned again," some type of catastrophic soil impact would occur.

We submit the fire history map of the Rim Fire area below (Figure 1).

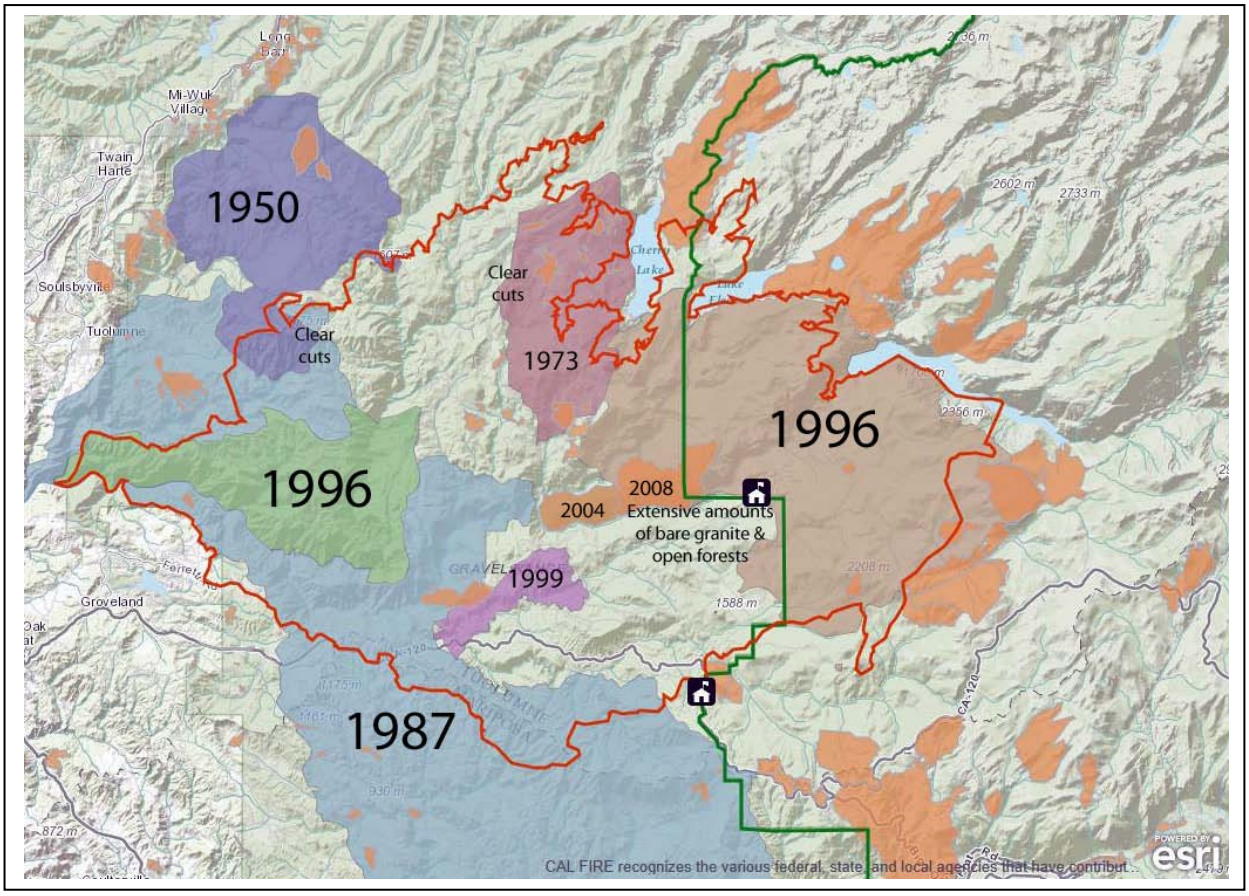


Figure 1. Rim Fire history map. Fire perimeter (as of 11/29/13) shown in red.

As the map illustrates, most of the Rim Fire area had been burned over the past several decades. Data that suggest the mean fire return interval in yellow pine and mixed conifer forests across the state of California prior to European influence ranged from 11-16 years, with the mean maximum ranging from 40-80 years (Van de Water and Safford 2011). So we are curious how the USFS arrived at its conclusion concerning the impact fire exclusion.

We are also curious why the USFS seems to be ignoring research after the 2002 Biscuit Fire indicating that,

> Areas that were salvage-logged and planted after the initial fire burned more severely [in the Biscuit Fire] than comparable unmanaged areas**, suggesting that fuel conditions in conifer plantations can increase fire severity despite removal of large woody fuels** (Thompson et al. 2007).

What the above map does not show, and the USFS also appears to ignore, is that a significant portion of the western/northwestern part of the Rim Fire burned through a forest that had been heavily "managed."

Many of the forest stands in this area, especially on the periphery, were a tangled mass of even-age secondary forest due to past logging practices and replanting projects. More importantly, there were a significant number of clear cuts within the perimeter of the fire. These extreme "fuel treatments" appeared to do little to alter the course of the fire (see Photo 3 below).

Photo 3. Rim Fire area clear cuts. Fire perimeter shown in red.

By continually blaming large fires exclusively on fire exclusion and “unnatural fuel loads,” while ignoring other extremely important variables, the USFS is engaging in circular reasoning in order to justify salvage logging as “restoration.”

Past fire suppression has certainly contributed to increasing the "fuel load" in some yellow pine/mixed conifer forests and the data clearly show the need to bring low severity surface fire back into these systems. However, the interaction of the diversity of the Rim Fire landscape, past logging practices, tree farming, herbicide use, livestock grazing, record low fuel moistures, and one of the worst droughts in the past century, all contradict the simplistic notion that past fire suppression was the main factor causing this fire to behave the way it did.

From our preliminary review of the data, we believe the Rim Fire was more of a climate event than anything else. The Palmer Drought Severity Index (PDSI) for the Sierra Nevada for the six months prior to Rim Fire was the lowest in 100 years. The PDSI over the prior 15 months was the second lowest over the past century (data collected since 1895).

Why is it important that the USFS communicate the multivariable cause of large and/or severe forest fires rather than continually emphasizing past fire suppression?

A multivariable explanation is more truthful and corrects the unfortunate misconception that government firefighters are to blame**. Accurately portraying the cause of large forest fires encourages a more informed discussion and the generation of more solutions to problems associated with wildland fire.**

Emphasizing past fire suppression, as is currently the case, leads to one narrow approach: increasing expenditures for more fuel treatments of questionable value. As a consequence, forestry practices that lead to flammable environments continue, biodiverse, non-conifer habitats such as native shrublands are demonized, programs for community protection and fire-safe retrofitting are not adequately funded, and millions of dollars are spent in an attempt to maintain a presumed historical forest structure that will not likely survive with climate change.

The Scoping Package states that the “goal is not to prevent fires within the forest, but to modify fire behavior to lower severity.” While the data clearly show fuel treatments can reduce fire severity, the massive expenditure of money to attempt to prevent large, severe forest fires and preserve all Sierra Nevadan late seral forests in an increasingly warming climate is a questionable objective (McKenzie et al. 2004). Entering forests beyond community defense areas with equipment to create a “heterogenous forest structure throughout the area (planting in clumps and variable spacing of trees)” is more of an attempt to establish an unsustainable, artificial landscape than employ adaptive management to maintain a naturally biodiverse, heatlhy ecosystem.

Fire Severity and Soils. Regarding "severely burned soils" and the purported negative impact of leaving dead material on the ground to burn in the next fire, we request the USFS provide in its forthcoming EIS, answers with supporting research to the following:

- Why the USFS believes "severely" burned post-fire soils in forests are so detrimental to the functioning of *natural* ecosystems.

- An examination of the claimed negative impact of "hydrophobic soils." What is the long term ecological (not timber production) impact of such conditions? Is the ecosystem actually "destroyed" as the Scoping Package claims?

- How will salvage logging activities in the Project area not increase the chance of additional soil damage during the next fire as has been shown to occur in research concerning other coniferous stands (Hansen 1983).

- An analysis of severity of the Rim Fire in areas previously burned and salvaged logged. How do these areas compare to other burned locations? Many of the areas that were salvage logged after the 1987 Stanislaus Complex Fire reburned in the Rim Fire. A similar situation occurred in the 2002 Biscuit Fire in southern Oregon. Although weather is the most significant factor in determining fire behavior, research has shown that salvage logging can lead to higher fire severity (Odion et al. 2004).

In our field experience studying chaparral fires that naturally burn at high severity, we have found very few places that fail to develop a healthy ecosystem response within the first two post fire years. Those few areas that remain unvegetated contribute to the development of heterogeneous soils. The remarkable level of recovery after a high severity Sierra Nevada chaparral fire was thoroughly documented after the 2002 McNally Fire in the Sequoia National Forest (Keeley et al. 2005).

3. The Goal of Creating a "Fire Resilient Forest" is Questionable

One of the key proposed actions of the Project is, "fuel reduction for future forest resiliency to fire."

One of the primary problems with the concept of a "fire resilient" forest is that there is no agreed upon definition of what such a forest looks like. Does it mean mile upon mile of "open, park-like" stands of trees with only a grassy understory? Does it mean creating and continually maintaining an artificial forest through salvage logging, "planting in clumps," and maintaining "variable spacing of trees" across the landscape? Or does it mean allowing the post fire environment to recover and adapt to the changing climate on its own, letting natural fires (those that do not threaten communities) burn?

During a time of rapidly changing climatic conditions, "fire resiliency" is a moving target at best. During the Middle Holocene (8,000 – 4,000 years ago), the climate was much drier and warmer. Fire frequency likely increased (Woolfenden 1996) and data suggest that conifer forests retreated while oak and sagebrush habitats expanded (Anderson 1990). The so-called Medieval Droughts (900 -1100AD and 1200-1350AD) also likely increased fire frequencies. Considering that the 20th century was one of the wettest centuries over the past 4,000 years and that the period from 1400-1880 was one of the coolest in over 10,000 years (Stine 1996), it is likely fire regimes and plant communities will change significantly in the future.

Is it the intent of the USFS to maintain a "fire resilient" forest based on a reference climate pattern (1400-1880) that will no longer exist? If so, how will the USFS turn back the expansion of oak woodlands and chaparral? Is such a goal realistic?

Whatever plan the USFS develops to manage the Rim Fire environment, it must explain what "fire resiliency" looks like, how it plans to maintain it, and if it has factored into the definition the inevitable changes that will occur in plant communities as the climate changes.

Otherwise, conifer-centric land management perspectives will continue to dictate outcomes, valuing green-tree/commercially viable forests over all other plant communities, viewing native shrubs only as "ladder fuels" rather than important habitat components, and devaluing post-fire communities. Conifer-centric land management perspectives do not support naturally evolving ecosystems rich in biodiversity nor do they facilitate realistic land management plans that account for climate change.

4. Project Ignores Montane Chaparral

Comparing estimates by Show and Kotok (1924) and USFS vegetation maps from the mid-2000s, the landscape extent of montane and mixed chaparral has been reduced significantly on the Stanislaus National Forest. Chaparral cover currently represents 9.9% of the Forest as opposed to 16.2% in 1924. The cause for this reduction is not clear. However, shrub cover in the forest understory is probably less than the natural range of variability (NRV) due to shading by increasing tree density and canopy cover (Safford 2013).

Despite the fact that a significant amount of shrubland burned in the Rim Fire, the Scoping Package makes no mention of this habitat type or the important contribution it represents in post fire environments.

Researchers have found that post fire shrub dominated landscapes are critically important wildlife habitat.

> While some snag associated species (e.g. black-backed woodpecker) decline five or six years after a fire, those associated with understory plant communities take place resulting in similar avian diversity three and eleven years after fire (Burnett et al. 2012).

Similarly, in a study commissioned by the Forest Service and conducted in the Sierra Nevada, researchers concluded that native fire-following shrubs are vitally important to biodiversity in complex early seral forests created by high-intensity fire.

> Many more species occur at high burn severity sites starting several years post-fire… and these include the majority of ground and shrub nesters as well as many cavity nesters. Secondary cavity nesters, such as swallows, bluebirds, and wrens, are particularly associated with severe burns, but only after nest cavities have been created, presumably by the pioneering cavity-excavating species such as the Black-backed Woodpecker. Consequently, fires that create preferred conditions for Black-backed Woodpeckers in the early post-fire years will likely result in increased nesting sites for secondary cavity nesters in successive years (Siegel et al. 2011).

The USFS needs to consider chaparral in the upcoming EIS for the Project.

5. Pesticide Use

Considering the Stanislaus National Forest's record of excessive use of chemical pesticides (the Forest was responsible for spraying approximately half of the pesticides used in all of Region 5 in 2003 - Figure 2), we are deeply concerned over the Project's proposed use of fungicide.

The upcoming EIS needs to detail the exact extent of any use of chemical treatments and provide the necessary research indicating the need for such treatments to facilitate the natural recovery of the ecosystem.

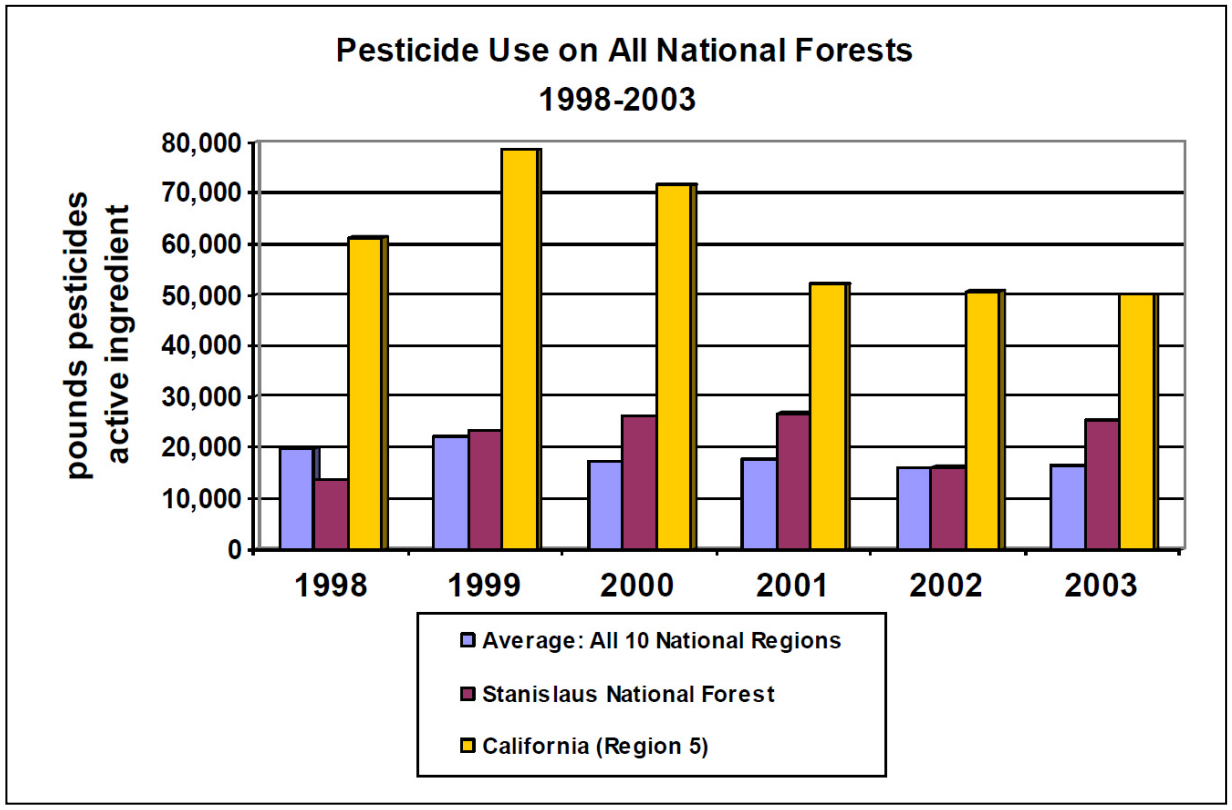


Figure 2. Pesticide Use on All National Forests. The Stanislaus National Forest has a record of significant pesticide use (USFS 1998-2003).

We thank the USFS for making the decision to follow the National Environmental Protection Act process and not take the path some have advocated that would ignore the science, dismiss public involvement, and take actions based on short-term economic interests.

The wealth of research indicating that salvage logging causes significant environmental damage and does not achieve the Project's goal of restoration needs to be seriously considered in the upcoming EIS. This is especially important in light of the planning rule stating that Forest Service officials **shall use the best available scientific information (BASI) to inform the planning process.**

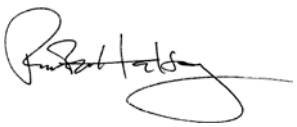
> The rule requires that the responsible official document how BASI was determined to be accurate, reliable, and relevant to the issues being considered. This includes relevant ecological, social, and economic scientific information. The BASI should provide a foundation of scientific information that the responsible official shall use and identify for the public in the planning process. Use of the BASI must be documented for the assessment, the plan decision, and the monitoring program (USFS Planning Rule, Proposed FS1909.12, Chapter 40, Version—02/14/2013).

As Richard Hutto (2006) explained in his paper on salvage logging in Western forests,

> Land managers, politicians, and the public-at-large need to gain a better appreciation of the unique nature of burned forests as ecological communities, how sensitive the process of succession is to conditions immediately following the disturbance event (Platt & Connell 2003), and how important the legacy of standing deadwood is to the natural development of forests (Franklin et al. 2000). Nowhere are soils, special plants, or wildlife more sensitive to the proposition of tree harvesting than in a burned forest**. And nowhere is the consideration of ecology more blatantly absent than in decisions to salvage log.**

We urge the USFS to continue to examine the science, to make land management decisions based on that science, and to consider ecological values as the primary driver of policy on the Stanislaus National Forest. If the USFS does so, it will limit salvage logging to areas near communities and infrastructure that involve threats to public safety.

Sincerely,



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